

The impact of predation losses on wildlife ranches in Limpopo Province, South Africa

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Presented against the backdrop of Coordinated Predation Management

- discussed in the context of

Livestock Production

Wildlife Ranching

Biodiversity and Conservation



South Africa is endowed with diverse flora and fauna

... many large African herbivores have disappeared from the landscape ...

... except when contained behind appropriate fences ...

... similarly many large African carnivores have disappeared from the landscape, except when confined behind appropriate fences





Some large African herbivores are very dangerous ...

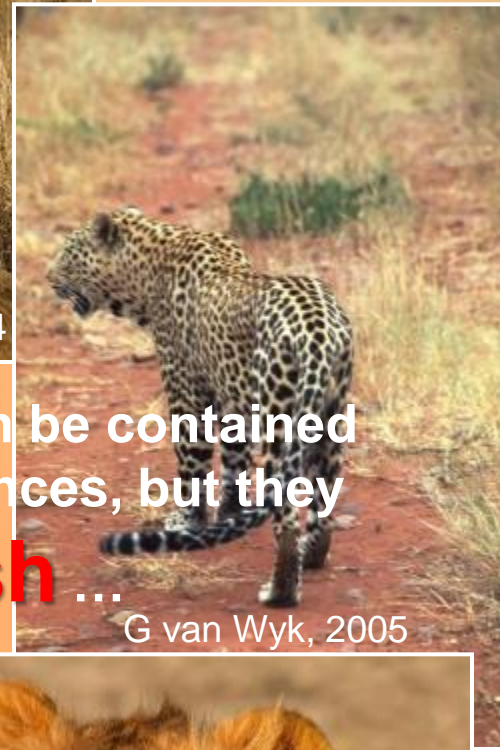
... these large herbivores are easily contained behind appropriate fences, but they eat **plants** ...



The large African
carnivores are very
dangerous ...

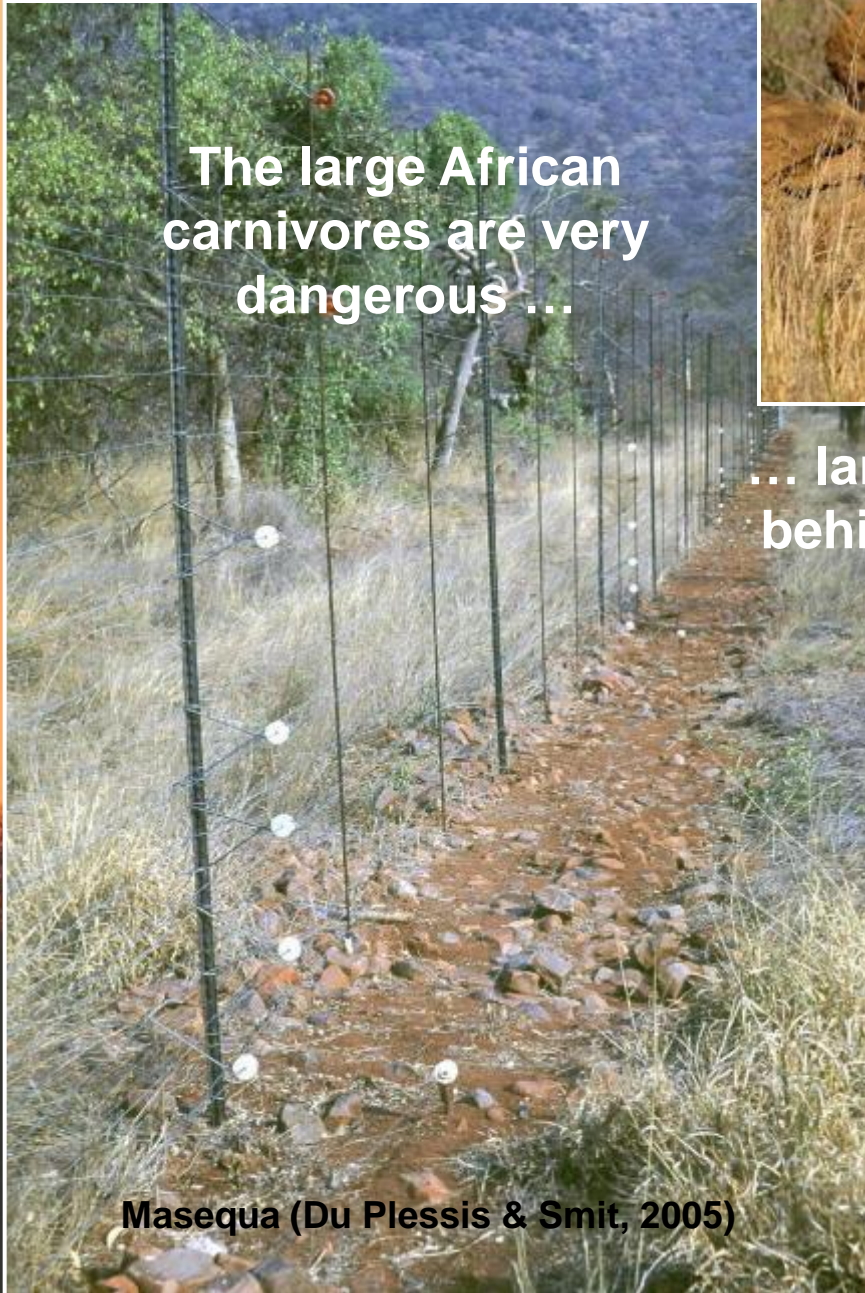


Nico Smit, 2004



G van Wyk, 2005

... large carnivores can be contained
behind appropriate fences, but they
still eat **flesh** ...



Masequa (Du Plessis & Smit, 2005)



Nico Smit, 2004

Large and medium-sized African predators are increasingly conflicting with human activities ...



Canis adustus

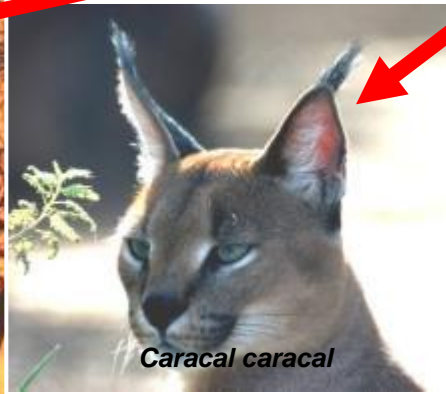


Panthera leo

...especially these two medium-sized predators...



Canis mesomelas



Caracal caracal



Acinonyx jubatus



Panthera pardus



Crocuta crocuta



Hyaena brunnea

... and there should be no illusion about a daily reality ...



... and a cry for help by livestock farmers & wildlife ranchers and producer organisations – NWGA / RPO / SAMGA / WRSA

The logical question: what is the impact of predation losses on livestock?

Van Niekerk, 2010

- more than ZAR 1.39 thousand million
- for sheep and goats in 5 Provinces

Badenhorst, 2014

- more than ZAR 383 million
- for beef cattle in 9 Provinces

... but what about wildlife?

If it has red blood, it is “fair game” for predators ...



**Springbok and Dorper lamb
predated on the same farm
(Japie van Wyk, Brandvlei
district, 10 August 2016)**

The next logic question: What is the impact of predation on the wildlife ranching industry?



... the study by Schepers, 2016 ...



Number and distribution of members of Wildlife Ranching South Africa (WRSA) and the adjusted proportion of respondents selected for the study

Source: Wildlife Ranching South Africa

| Province | Total number of WRSA members | Percentage of WRSA members | Number of WRSA members sampled | Percentage of WRSA members sampled in each province |
|----------------|------------------------------|----------------------------|--------------------------------|---|
| Gauteng | 147 | 7.78 | 0 | 0 |
| Kwa-Zulu Natal | 69 | 3.65 | 3 | 4.35 |
| Limpopo | 863 | 45.64 | 201 | 23.29 |
| Mpumalanga | 76 | 4.02 | 4 | 5.26 |
| Northern Cape | 119 | 6.29 | 8 | 6.72 |
| North West | 264 | 13.96 | 61 | 23.11 |
| Eastern Cape | 137 | 7.24 | 10 | 7.3 |
| Free State | 157 | 8.3 | 64 | 40.76 |
| Western Cape | 59 | 3.12 | 2 | 3.39 |
| Total | 1891 | | 353 | |

Structured questionnaire

focused on a **range of general questions**, namely:

- name, age and gender of the wildlife rancher
- size of the wildlife ranch
- topography of the wildlife ranch
- presence of livestock on the wildlife ranch
- economically important wildlife species
- measuring predation on the wildlife ranch

followed by **detailed and specific questions**, namely:

- predation status and records
- predation control methods (non-lethal and lethal)
- person(s) responsible for conducting predation management

Different groups of wildlife species (antelope)

A method was developed to compare the wide range of wildlife species (antelope) on wildlife ranches ...

Wildlife species (antelope) were divided into three groups based on the reported predation losses incurred on wildlife ranches, namely:

- large antelope species
- small antelope species
- scarce species/colour variant antelope

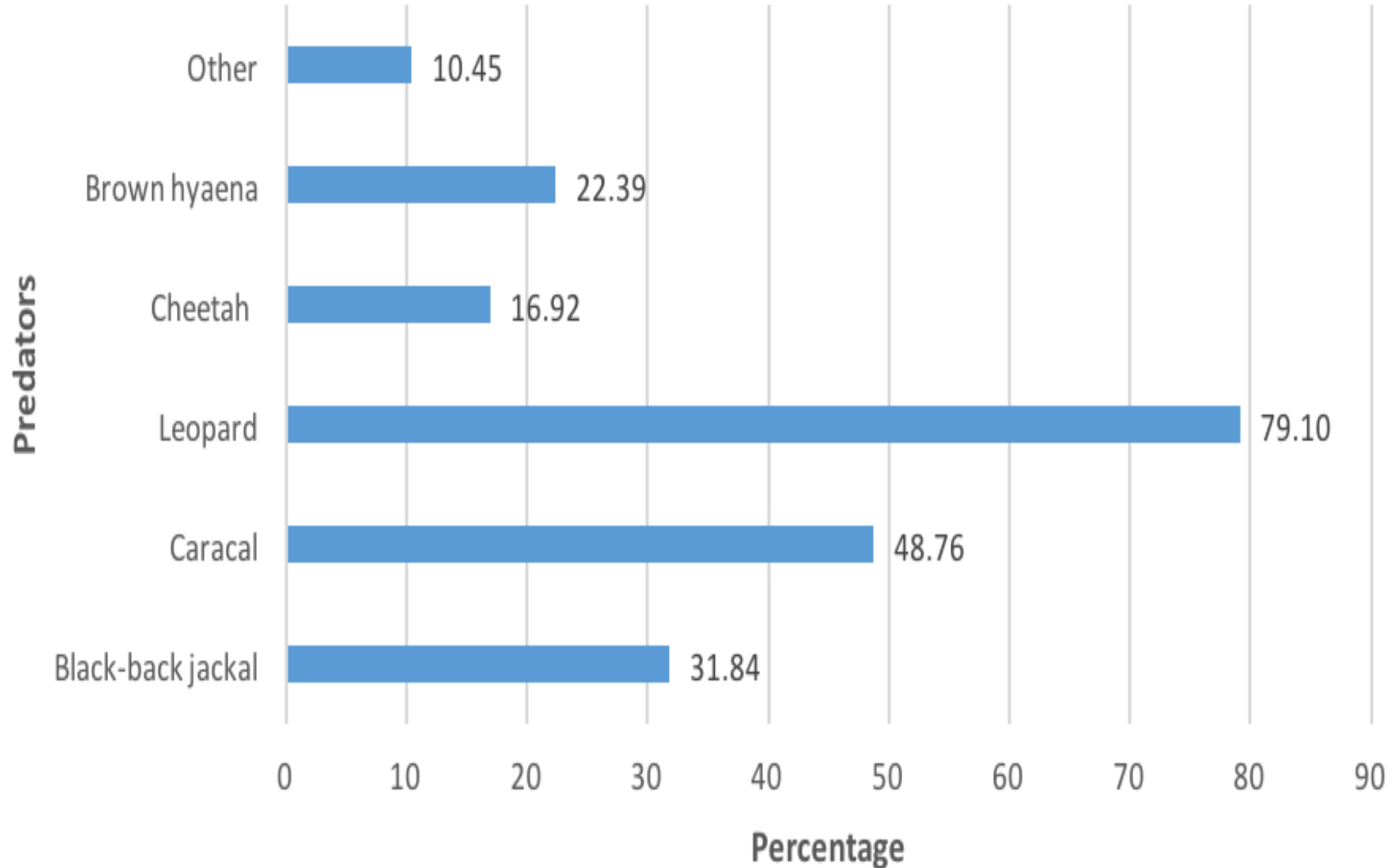
Based on information provided by WRSA members, three groups of wildlife species (antelope) were defined

| Large species | | Small species | | Scarce species/colour variants | |
|------------------------|--------------------------|-----------------|----------------------|--------------------------------|-----------------------|
| Wildlife specie | Scientific name | Wildlife specie | Scientific name | Wildlife specie | Scientific name |
| Kudu | Tragelaphus strepsiceros | Impala | Aepyceros melampus | Livingston eland | Tragelaphus oryx |
| Nyala | Tragelaphus angasii | Blesbok | Damaliscus pygargus | Black impala | Aepyceros melampus |
| Blue wildebeest | Connochaetes taurinus | Bushbuck | Tragelaphus scriptus | Golden wildebeest | Connochaetes taurinus |
| Gemsbok | Oryx gazelle | Rhebok | Redunca fulvorufula | King wildebeest | Connochaetes taurinus |
| Red hartebeest | Alcelaphus buselaphus | Reedbuck | Redunca arundinum | Yellow blesbok | Damaliscus pygargus |

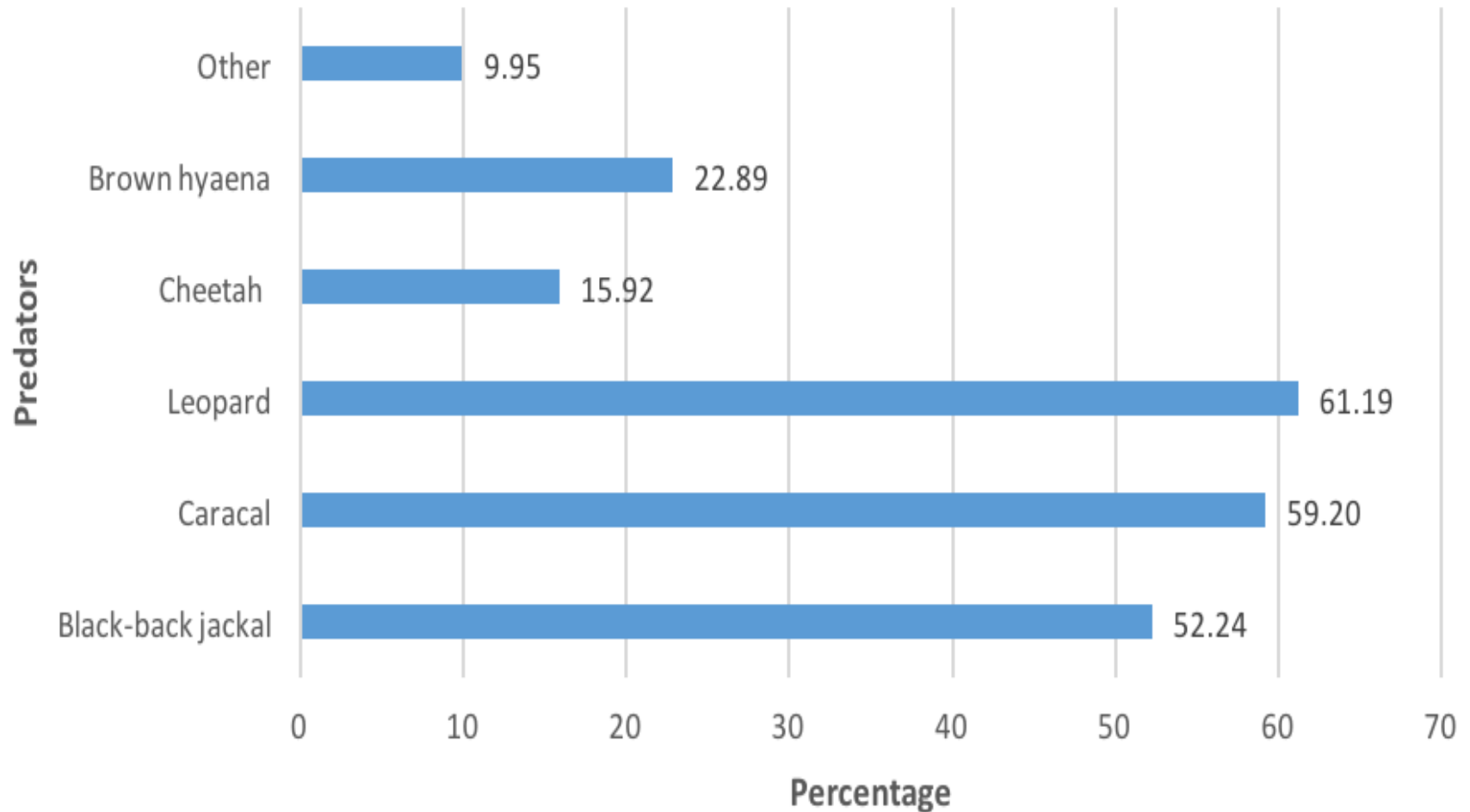
Results & Discussion – focus on Limpopo Province



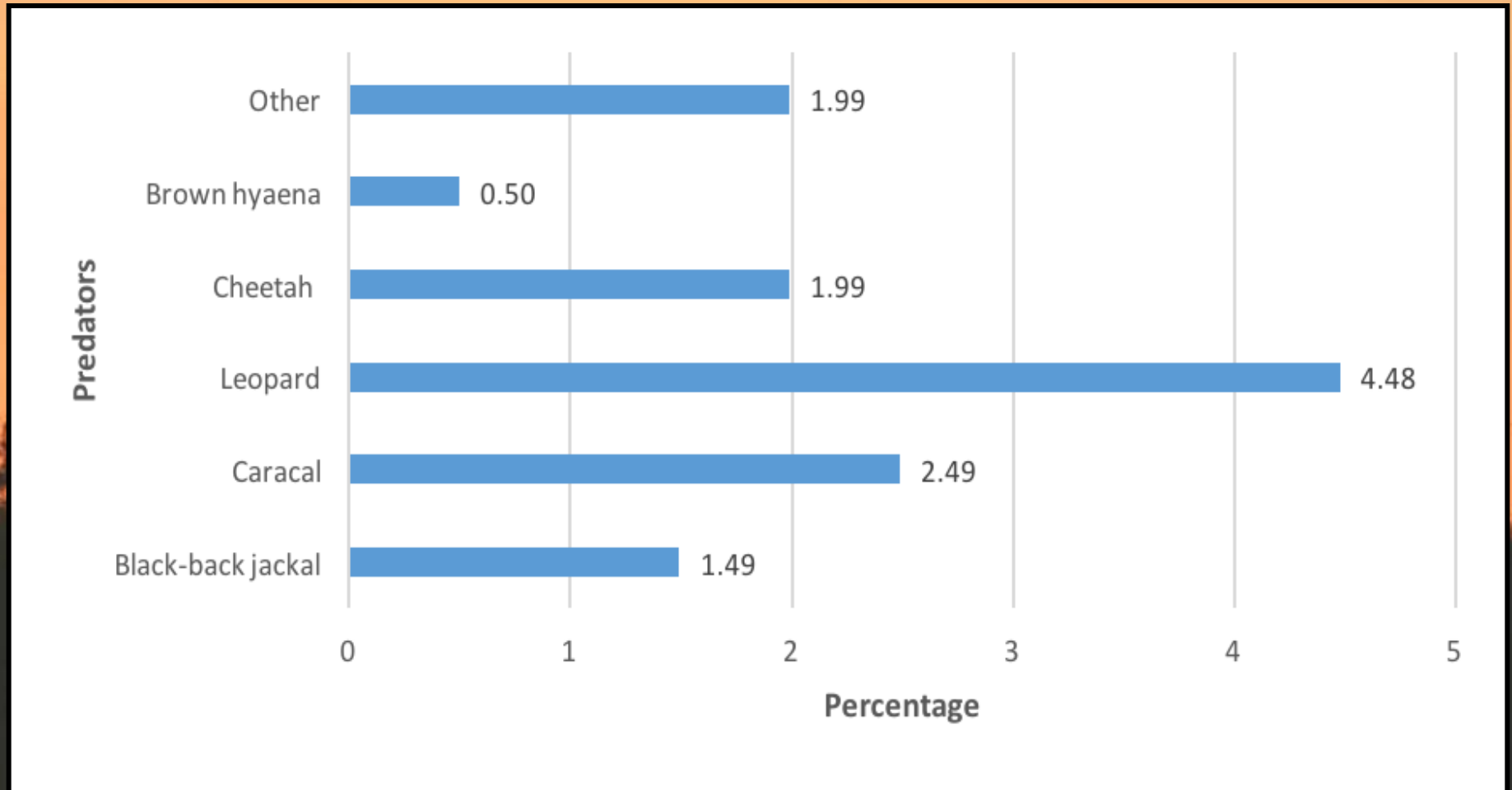
Predators implicated for losses of large wildlife species (antelope) on wildlife ranches of WRSA members in the Limpopo province

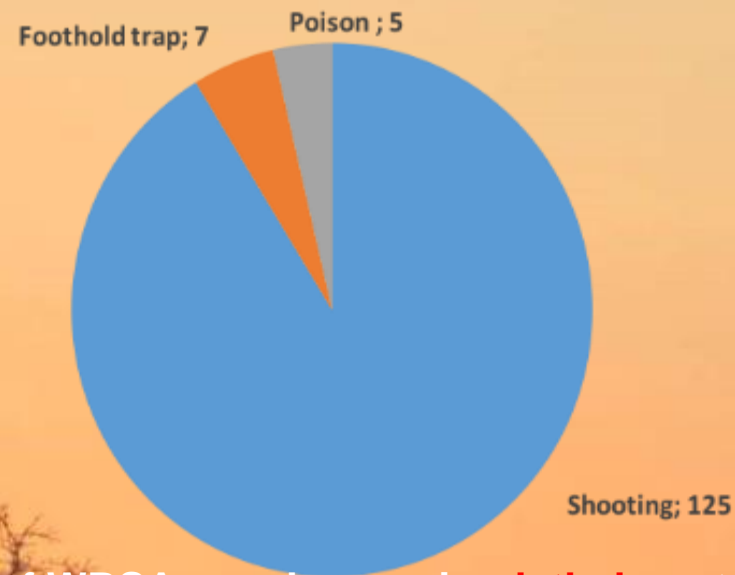
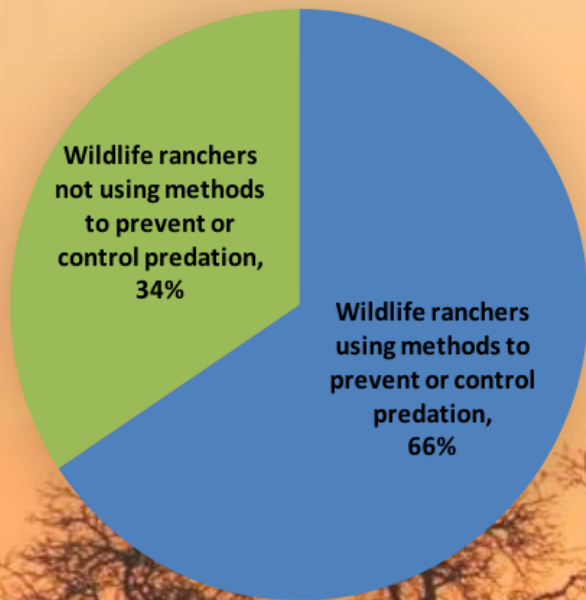


Predators implicated for losses of small wildlife species (antelope) on wildlife ranches of WRSA members in the Limpopo province

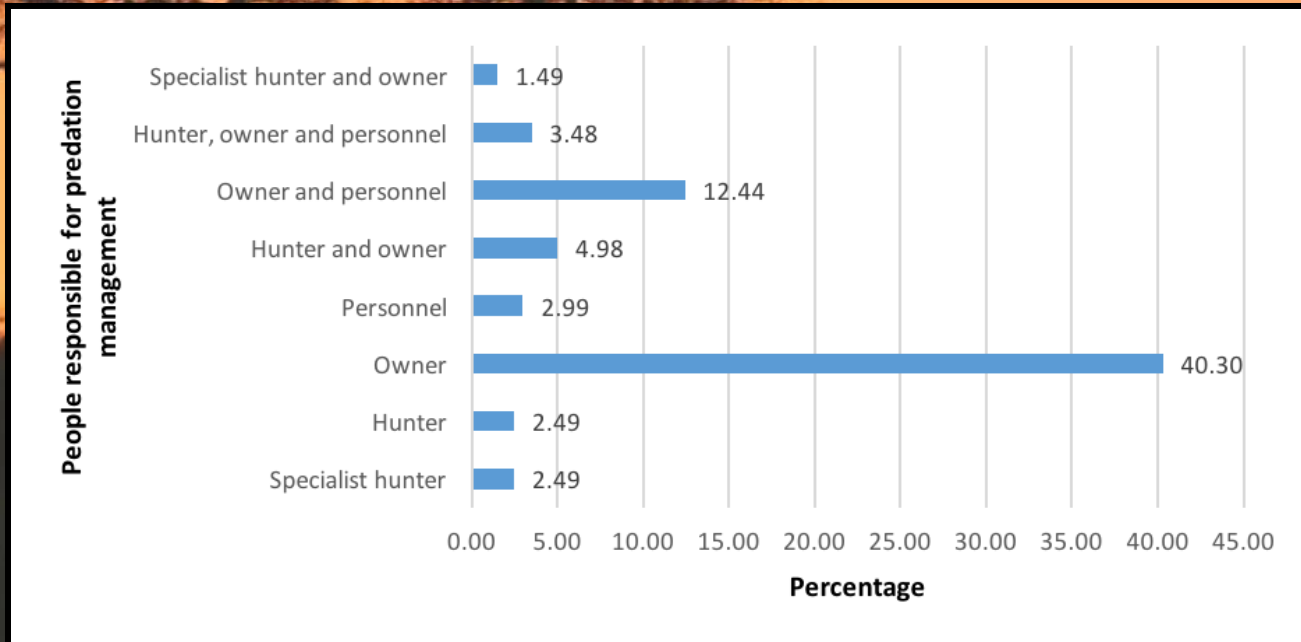


Predators implicated for losses of scarce species/colour variant wildlife species (antelope) on wildlife ranches of WRSA members in the Limpopo province



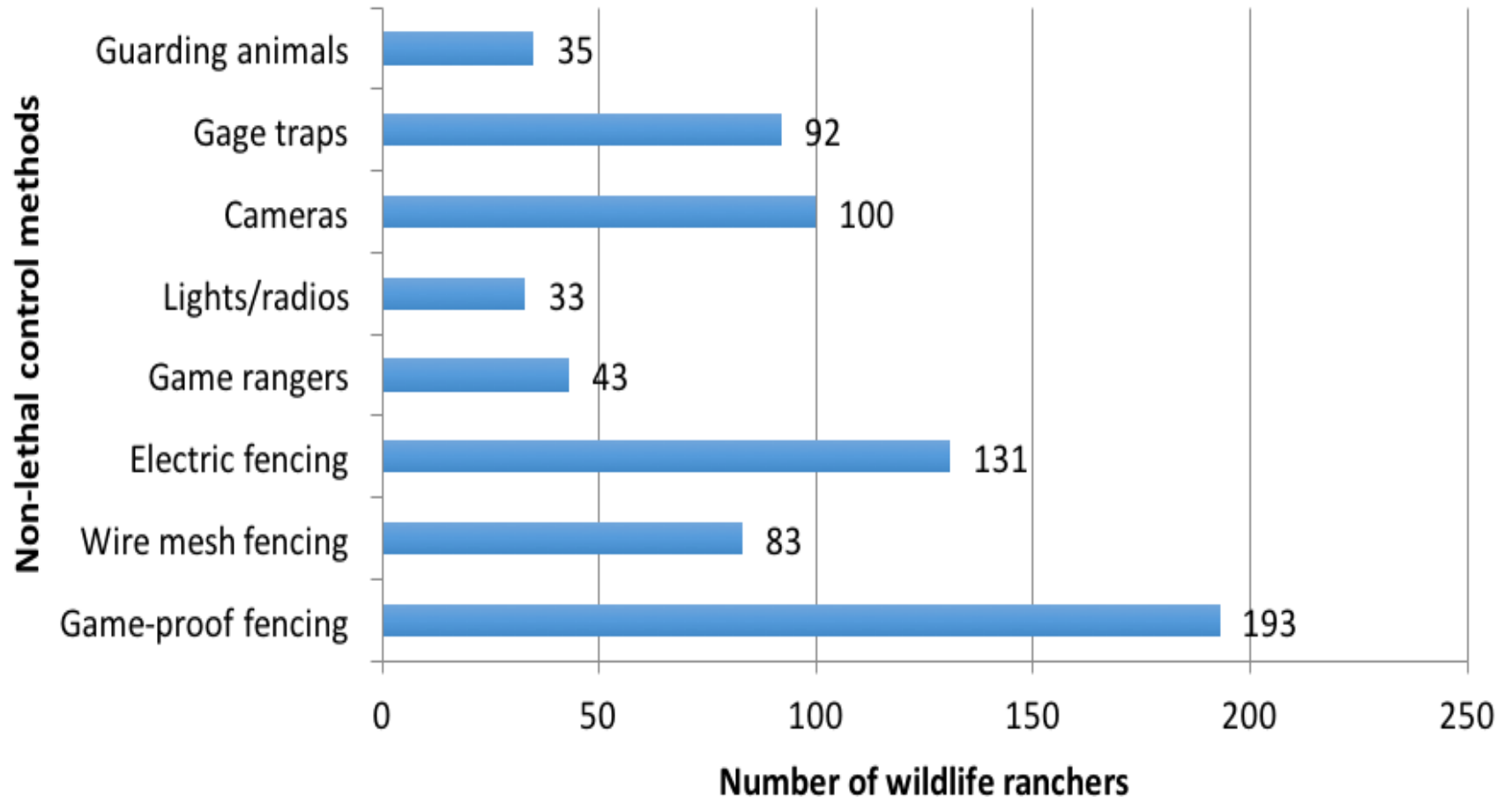


Number of WRSA members using **lethal** control methods to control predators in the Limpopo province



Percentage of people responsible for managing predation on the wildlife ranches of WRSA members in the Limpopo province

Number of WRSA members using non-lethal control methods & other methods assisting wildlife ranchers to manage predation in the Limpopo province



Common names, scientific names of wildlife species reported by the respondents, as well as the average auction prices (ZAR) for these species during 2014 & 2015

| Species named by wildlife ranchers | Scientific name ¹ | Common name ¹ | Average ZAR 2014/15 ² |
|------------------------------------|---|--------------------------|----------------------------------|
| African buffalo | <i>Syncerus caffer</i> (Sparman, 1779) | African buffalo | 999 941 |
| Black wildebeest | <i>Connochaetes gnou</i> (Zimmerman, 1780) | Black wildebeest | 4 514 |
| Blesbok | <i>Damaliscus pygargus phillipsi</i> (Pallas, 1767) | Blesbok | 4 153 |
| Blesbok (copper) | | | |
| Blesbok (masked face) | | | 949 330 |
| Blesbok (white) | | | |
| Blesbok (yellow) | | | |
| Blue wildebeest | <i>Connochaetes taurinus</i> (Burchell, 1823) | Blue wildebeest | 14 495 |
| Blue wildebeest (golden) | | | |
| Blue wildebeest (king) | | | 1 230 486 |
| Blue wildebeest (split) | | | |
| Bontebok | <i>Damaliscus pygargus dorcas</i> (Pallas, 1767) | Bontebok | 121 817 |
| Bushbuck | <i>Tragelaphus scriptus</i> (Pallas, 1766) | Bushbuck | 21 282 |
| Cape Grysbok | <i>Raphicerus melanotis</i> (Thunberg, 1811) | Cape Grysbok | 24 417 |
| Common duiker | <i>Sylvicapra grimmia</i> (Linnaeus, 1758) | Common duiker | 13 788 |
| Common ostrich | <i>Struthio camelus</i> (Linnaeus, 1758) | Common ostrich | 8 518 |
| Common warthog | <i>Phacochoerus africanus</i> (Gmelin, 1788) | Common warthog | 400 |
| Eland | <i>Tragelaphus oryx</i> (Pallas, 1766) | Eland | 9 325 |
| Eland (Livingston) | | | 282 430 |
| Fallow deer | <i>Dama dama</i> (Linnaeus, 1758) | Fallow deer | 5 227 |

Table continues ...

Common names, scientific names of wildlife species reported by the respondents, as well as the average auction prices (ZAR) for these species during 2014 & 2015

| | | | |
|-------------------------------------|--|-----------------------------|----------------------|
| Gemsbok | <i>Oryx gazella</i> (Linnaeus, 1758) | Gemsbok | ZAR 8 496 |
| Gemsbok (golden) | | | |
| Gemsbok (painted) | | | 372 437 ³ |
| Giraffe | <i>Giraffa camelopardalis</i> (Linnaeus, 1758) | Giraffe | 12 931 |
| Greater kudu | <i>Tragelaphus strepsiceros</i> (Pallas, 1766) | Greater kudu | 33 923 |
| Greater kudu (white) | | | 586 667 |
| Grey rhebok (Vaalribbok) | <i>Pelea capreolus</i> (Forster, 1790) | Grey rhebok (Vaalribbok) | 10 750 |
| Impala | <i>Aepyceros melampus</i> (Lichtenstein, 1812) | Impala | 8 643 |
| Impala (black) | | | |
| Impala (black-backed) | | | |
| Impala (colour variant) | | | 684 761 ³ |
| Impala (split) | | | |
| Impala (white) | | | |
| Klipspringer | <i>Oreotragus oreotragus</i> (Zimmermann, 1783) | Klipspringer | 22 063 |
| Lechwe | <i>Kobus leche</i> (Gray, 1850) | Lechwe | 67 758 |
| Mountain zebra | <i>Equus zebra</i> (Linnaeus, 1758) | Mountain zebra | 4 809 |
| Nyala | <i>Tragelaphus angasii</i> (Gray, 1849) | Nyala | 24 165 |
| Oribi | <i>Ourebia ourebi</i> (Zimmermann, 1783) | Oribi | - |
| Plains zebra | <i>Equus quagga</i> (Gray, 1824) | Plains zebra | 4 809 |
| Red hartebeest | <i>Alcelaphus buselaphus</i> (Pallas, 1766) | Red hartebeest | 7 462 |
| Roan | <i>Hippotragus equinus</i> (Desmarest, 1804) | Roan | 544 531 |
| Sable | <i>Hippotragus niger</i> (Harris, 1838) | Sable | 787 645 |
| Southern reedbuck (Rietbok) | <i>Redunca arundinum</i> (Boddaert, 1785) | Southern reedbuck (Rietbok) | 17 113 |
| Springbok | <i>Antidorcas marsupialis</i> (Zimmermann, 1780) | Springbok | 2 861 |
| Springbok ("bont") | | | |
| Springbok (black) | | | |
| Springbok (coffee hartwater) | | | 210 872 ³ |
| Springbok (coffee) | | | |
| Springbok (copper) | | | |
| Springbok (hartwater) | | | |
| Steenbok | <i>Raphicerus campestris</i> (Thunberg, 1811) | Steenbok | 29 887 |
| Tsessebe | <i>Damaliscus lunatus</i> (Burchell, 1823) | Tsessebe | 113 229 |
| Waterbuck | <i>Kobus ellipsiprymnus</i> (Ogilby, 1833) | Waterbuck | 5 991 |

¹ Bronner et al. (2003)

² Dr. Johann Reyneke (WildSA & Gamelab) & Dr. Paul Lubout (Wildlife Stud Services & Gamelab) December 2015

³ The average auction price for the species is based on the data from the 2014 and 2015 auctions. The average auction price for the species is based on the data from the 2014 and 2015 auctions.

Total cost due to predation for a selection of wildlife species (antelope) reported by respondents in the Limpopo province

| | Average ha | Average number of wildlife lost/ha | Indirect cost/ha | Average wildlife prices | Total cost (ZAR) due to predation |
|---------------------------------------|------------|------------------------------------|------------------|-------------------------|-----------------------------------|
| | Column 1 | Column 2 | Column 3 | Column 4 | Column 5 |
| Large species | | | | | |
| Nyala | 2 147.09 | 0.00416 | 26.15 | 24 165 | 252 898.00 |
| Blue wildebeest | 2 436.17 | 0.00220 | 26.15 | 14 495 | 119 735.32 |
| Kudu | 2 520.85 | 0.00399 | 26.15 | 33 923 | 384 713.90 |
| Gemsbok | 3 668.23 | 0.00292 | 26.15 | 8 496 | 154 316.27 |
| Red hartebeest | 2 249.36 | 0.00251 | 26.15 | 7 462 | 80 953.61 |
| Small species | | | | | |
| Impala | 2 265.05 | 0.02162 | 26.15 | 8 643 | 462 345.77 |
| Rhebuck | 6 730.00 | 0.00084 | 26.15 | 10 750 | 176 931.70 |
| Bush buck | 1 754.44 | 0.00526 | 26.15 | 21 282 | 226 679.47 |
| Reedbuck | 1 150.83 | 0.00232 | 26.15 | 17 113 | 65 553.76 |
| Blesbok | 1 905.67 | 0.00927 | 26.15 | 4 153 | 106 256.94 |
| Scarce species/colour variants | | | | | |
| Black impala | 2 166.75 | 0.00110 | 26.15 | 684 761 | 1 669 474.59 |
| Golden wildebeest | 930.05 | 0.00243 | 26.15 | 1 230 486 | 2 796 977.48 |
| King wildebeest | 1 270.00 | 0.00354 | 26.15 | 1 230 486 | 5 553 939.16 |
| Livingston eland | 1 671.07 | 0.00411 | 26.15 | 282 430 | 1 968 599.50 |
| Yellow blesbok | 1 000.00 | 0.00600 | 26.15 | 949 330 | 5 713 240.00 |

The total cost is a summary of the wildlife species included in the study. Column 1 - the average ha of the wildlife ranchers who responded in the study for the specific species. Column 2 - the average number of each of these species lost/ha. The indirect cost for the dissertation was estimated at ZAR 26.15/ha (Column 3). Column 4 the average prices during 2014. The total cost was calculated by multiplying the average ha (Column 1) with the average number lost/ha (Column 2) with the average 2014 price (Column 4) and adding the indirect cost/ha (Column 3) multiplied with the average ha (Column 1).

Baseline information was calculated for the three defined groups of wildlife species (antelope)

Wildlife ranchers can use the baseline information to estimate the financial losses for the specific wildlife species (antelope) kept on their wildlife ranches, for example:

Large species

- only nyalas *Tragelaphus angasii* on 5 000 ha
- total cost of predation losses = ZAR 593 765/year

Small species

- only blesbok *Damaliscus pygargus phillipsi* on 12 000 ha
- total cost of predation losses = ZAR 668 103/year

Scarce species/colour variants

- only black impala *Aepyceros melampus* and Livingston eland *Tragelaphus oryx* on 6 000 ha
- total cost of predation losses = ZAR 11 957 637/year

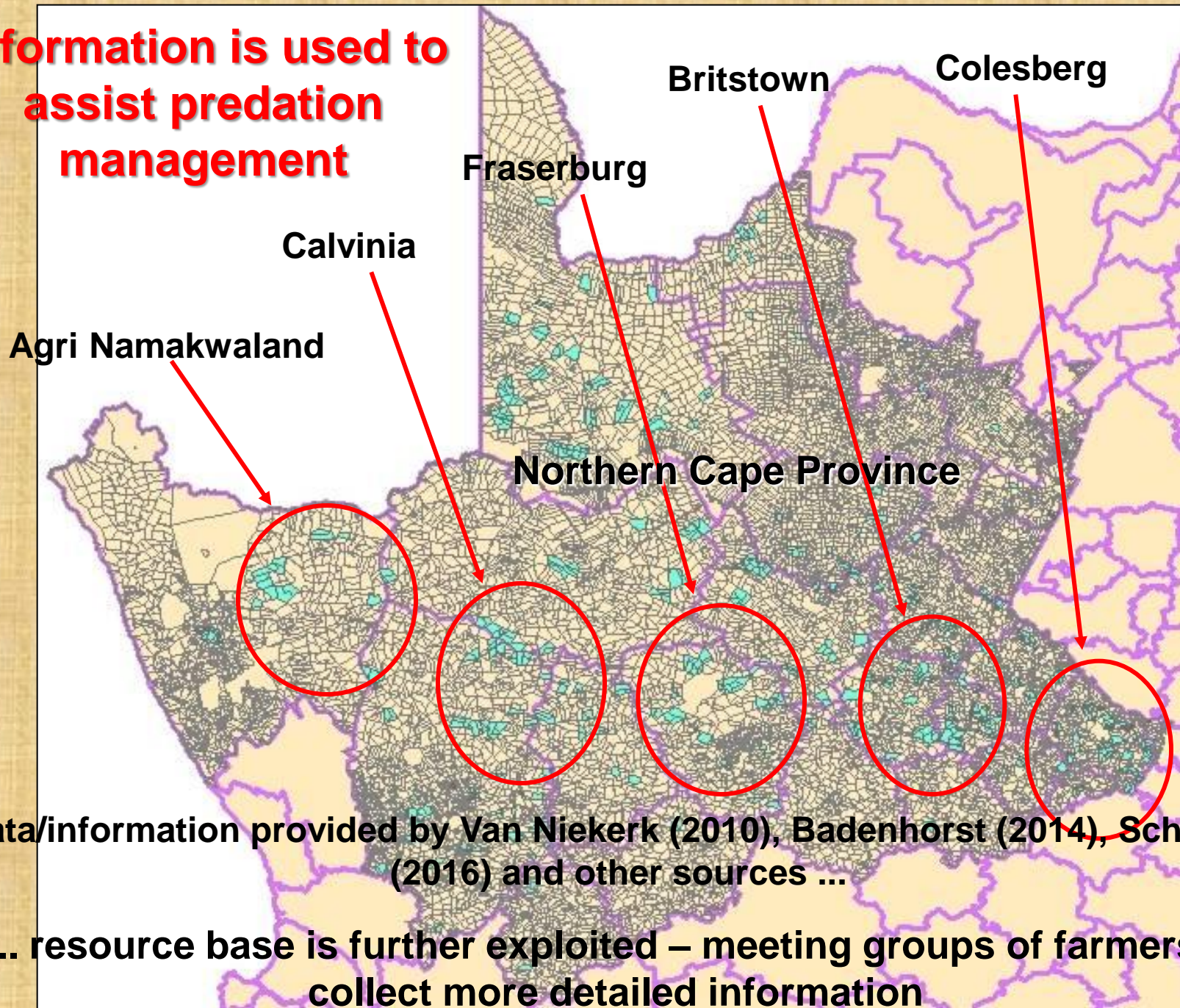
Financial losses can be calculated for different permutations/species mixes

The reality is - red blooded animals are
“fair game” for predators ...



**The impact of predation
on livestock and wildlife
is widespread and must
be managed ...**

Information is used to assist predation management



Data/information provided by Van Niekerk (2010), Badenhorst (2014), Schepers (2016) and other sources ...

... resource base is further exploited – meeting groups of farmers to collect more detailed information

**A system of coordinated
predation management
can reduce the impact of
predation**



Credit Farmers' Weekly



... implementation is long overdue and progress slow and frustrating ...

... while uncoordinated and fragmented activities continued ...

Activities must be coordinated ... and lessons learnt applied ...

... leadership needed to coordinate ...



Thank you